



SECTION 709

WATERPROOFING

709.1 Description. This work shall consist of furnishing and applying waterproofing material to concrete railroad bridge decks supporting ballasted track. Waterproofing shall consist of (1) one coat of asphaltic primer, (2) two layers of asphalt treated cotton fabric with three moppings of asphalt or if specified, three layers of asphalt treated cotton fabric and four moppings of asphalt, and (3) a protective covering of asphalt plank.

709.2 Material.

709.2.1 All material shall conform to Division 1000, Materials Details, and specifically as follows:

Item	Section
Joint Sealing Material	1057.1.4
Dampproofing and Waterproofing Material	1072

709.3 Construction Requirements.

709.3.1 Waterproofing shall not be applied in wet weather, nor when the ambient temperature is below 50 F (10 C). Concrete shall be dry and clean before waterproofing is applied. If bituminous material is used for curing, it may also serve as a priming coat, except that additional primer may be necessary before application of the waterproofing material. Projections that might damage the waterproofing shall be removed. There shall be no depressions or pockets in horizontal surfaces of finished waterproofing except those required for drainage.

709.3.2 Surfaces to be waterproofed shall, except as otherwise specified at joints, be primed in accordance with the requirements of [Sec 708.3.2](#). Joints shall be sealed with joint sealing material prior to application of waterproofing material. At deflection and expansion joints primer shall be omitted for a width of 18 inches (450 mm) on each side of the joint and a strip of impervious paper 36 inches (900 mm) wide shall be placed before waterproofing is applied.

709.3.3 Surfaces to be waterproofed shall be mopped in sections. While the first mopping of asphalt is still hot, a strip of cotton fabric shall be laid on the mopping and pressed into place. Each mopping thereafter shall be so applied that it will completely cover and seal the cotton fabric. The asphalt for each application shall be applied at a rate of not less than 4 1/2 gallons per 100 square feet (1.8 L/m²) of surface. Asphalt shall be heated to permit uniform application but shall not be heated above a temperature of 350 F (175 C).

709.3.4 Two layers of cotton fabric waterproofing shall be started by mopping a section of the surface 2 inches (50 mm) wider than half the width of the fabric. On this hot mopping, a half width of the fabric shall be laid. The top surface of this fabric and an adjacent section of the surface 2 inches (50 mm) wider than a half width of the fabric shall then be mopped. On this mopping shall be laid a full width of the fabric, completely covering the first strip. Thereafter full widths of fabric shall be laid in hot moppings, and in such manner that each strip will lap

the second preceding strip by 2 inches (50 mm). End laps shall be not less than 12 inches (300 mm).

709.3.5 Three layers of cotton fabric waterproofing shall be placed as for two layers, except that the first strip shall be a 1/3 width of the fabric; the second a 2/3 width; and the third and succeeding strips full widths. The second full strip shall lap the first strip at least 2 inches (50 mm). Each succeeding strip shall lap the third preceding strip at least 2 inches (50 mm).

709.3.6 The waterproofing shall be turned into drainage openings without breaking. Waterproofing shall be made effective along the sides and ends of slab, at gussets, stiffeners and all other places where waterproofing terminates. Work shall be so regulated that at the end of the day all fabric that has been placed will have received a coat of asphalt. The waterproofing shall be free from punctures, pockets or folds. Patching of defective waterproofing shall extend at least 12 inches (300 mm) beyond the outermost edge of the defective portion. The second and each succeeding ply of the patch shall extend at least 3 inches (75 mm) beyond the preceding ply.

709.3.7 Asphalt planking used as a protective covering shall be placed as soon as practicable after the waterproofing. The surface of the waterproofing shall be kept free of dirt or other foreign material. Immediately prior to laying the plank, a hot asphalt coating shall be applied at a rate of not less than 50 pounds per 100 square feet (2.5 kg/m²). The planks shall be laid tight against those previously placed, whose edges and ends shall have been heavily coated with hot asphalt. All joints shall be completely filled with hot asphalt.

709.4 Method of Measurement. Final measurement of waterproofing concrete railroad bridge decks will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added to or deducted from the contract quantity. The area will be computed to the nearest square yard (1.0 m²) for the actual surface area over which the waterproofing extends, including the portions of the faces of the curbs and ends of slab.

709.5 Basis of Payment. The accepted quantity of waterproofing of concrete railroad bridge decks will be paid for at the contract unit price.